Status of Pink Salmon (Oncorhynchus gorbuscha) in Lake Ontario, 1981.

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ABSTRACT

Dermott, R. 1982. Status of Pink Salmon in Lake Ontario, 1981. Can. MS Rep. Fish. Aquat. Sci. 0000: iv + xx p.

Oncorhynchus gorbuscha were first reported in Lakes Ontario and Erie during the fall of 1979. In spite of returns to tributaries of Lake Erie, success in Lake Ontario was limited with only two fish reported during the 1981 spawning season.

Key words: Pink salmon, Oncorhynchus gorbuscha, Lake Ontario

RÉSUMÉ

Dermott, R. 1982. Status of Pink Salmon in Lake Ontario, 1981. Can. MS Rep. Fish. Aquat. Sci. 0000: iv + xx p.

Le premier signalement du saumon rose, Oncorhynchus gorbuscha, dans les lacs Ontario et Erié a eu lieu à l'automne 1979. Quoique ce saumon soit revenu dans les tributaires du lac Erié, seulement deux poissons ont été signalés au cours de la fraie de 1981 dans le lac Ontario.

Mots-clés: saumon rose, Oncorhynchus gorbuscha, lac Ontario.

INTRODUCTION

Unlike the other exotic salmon, Oncorhynchus gorbuscha had its origin in the Great Lakes from a single accidental introduction in Thunder Bay, Lake Superior during 1956 (Schumacher and Eddy 1960).

By natural reproduction, normally in odd years, the pink salmon has extended its range throughout the upper Great Lakes where it has become well established in many tributaries (Collins 1975; Kwain and Lawrie 1981).

The normal life span of the fish is two years. The adults enter streams during mid September to spawn and die within two weeks. Spawning is generally undertaken on gravel riffles only a short distance upstream at water temperatures between 15 and 11° C. The larvae hatch during early spring and immediately move out of the streams during spring flood (Collins 1975, Kwain and Lawrie 1981). The distributions, feeding habits and behavior in the open lakes is unknown, (T.M. Stauffer, Michigan Dept. Natural Resources, unpublished report, May 1981), with fish only appearing off the river mouths during the August of their second year.

The species was first reported in Lake Erie during the late summer of 1979, when moderate numbers appeared in several tributaries in Ohio, Pennsylvania and Ontario (Emery 1981). During the same year several occurrences were reported in eastern Lake Ontario at South Sandy Creek, New York (42° 42'N, 076° 12'W) and in tributaries along the western shore at Forty Mile Creek, Grimsby (43° 12'N, 079° 33'W) and the Credit River (43° 33'N, 079° 35'W). The Cambridge District Office of Ontario Ministry of Natural Resources (OMNR) verified the capture of two gravid fish in Spencer Creek - Hamilton Harbour (43° 16'N, 079° 55'W) during September

1979 when four more were reported caught with an equal number seen, presumably spawning (H. Gingrich, personal communication. OMNR).

METHODS

From September 9th until October 5th, 1981, an extensive survey for pink salmon in Spencer Creek was undertaken three times per week using trap nets, nocturnal sets of gill nets and electroshocking. Electroshocking was also conducted twice a week until October 1st in other suitable streams entering Hamilton Harbour. While water temperatures were suitable for the spawning of pink salmon, spot checks using electroshocking were conducted in the lower reaches of neighbouring tributaries along western Lake Ontario between Oakville Creek (43^{o} 26'N, 079^{o} 40'W) and Twenty Mile Creek, Jordan (43^{o} 10'N, 079^{o} 22'W). Rain and cool temperatures caused stream temperatures to drop rapidly to 11^{o} C by September 20th and to 9^{o} C by October 5th.

RESULTS AND DISCUSSION

No pink salmon were captured, in the tributaries of Hamilton Harbour during 1981, nor were any reported to the OMNR by anglers. Both rainbow trout (Salmo gairdneri) and chinook salmon (O. tshawytscha) were present in Spencer Creek between September 22 and October 5, while only rainbow trout were present in Grindstone Creek (43^{o} 17'N, 079^{o} 53'W). Both these streams have suitable spawning areas for O. gorbuscha. No salmonids were electroshocked in Oakville Creek or Twenty Mile Creek. During this survey no O. gorbuscha were captured in Forty Mile Creek where

the species had occurred during 1979, nor were there any reports of the species to the Fonthill District of OMNR. No pink salmon were reported from Bronte Creek (43° 24'N, 079° 43'W) in spite of considerable angling activity for other salmonids in the stream (H. Gingrich, Cambridge OMNR, personal communication).

Only two pink salmon from tributaries along the north shore of Lake Ontario were reported to OMNR personnel during 1981 (Fig. 1). One verified specimen was angled September 25th from the Credit River (H. Gingrich, OMNR); a second caught the first week of October from Shelter Valley Brook, Grafton (43° 53'N, 078°W) (D. Bell, Lindsay District OMNR). There were no reports of O. gorbuscha from the New York tributaries of Lake Ontario during the 1981 spawning season (C. Schneider, personal communication, Cape Vincent Fisheries Station, N.Y. Department of Environmental Conservation). The species has yet to be reported from the upper St. Lawrence River (Brockville District OMNR).

During 1981 spawning adults from Lake Erie returned to Young Creek (42° 45'N, 080° 15'W) and Fishers Creek (42° 43'N, 080° 18'N) in numbers comparable to that during the fall of 1979; when approximately 50 fish were observed (D. Reid, Simcoe District OMNR). Spawning in these small streams began in early September as in Lake Superior (Kwain and Lawrie 1981), and reached a peak in late September when the stream temperature was 12° C. At the time of spawning the surface temperature of Lake Erie at the tributary mouths was still 18° C.

The potential success of pink salmon in the lower Great Lakes is enhanced by their habit of spawning in the lower reaches of small

tributaries and their ability to utilize during the fall and winter, streams normally too warm for salmonids in summer; as the fry quickly leave the streams after hatching during the spring thaw (Emery 1981). The absence of fish in the Lake Ontario tributaries during 1981 suggests that the fish reported in 1979 were strays from Lake Erie; the numbers insufficient for successful reproduction. It is unlikely that competition with other species would be limiting the survival of pink salmon in Lake Ontario considering their success in Lakes Michigan and Huron with similar fish communities. It is yet too soon to determine if pink salmon have successfully colonized Lake Ontario.

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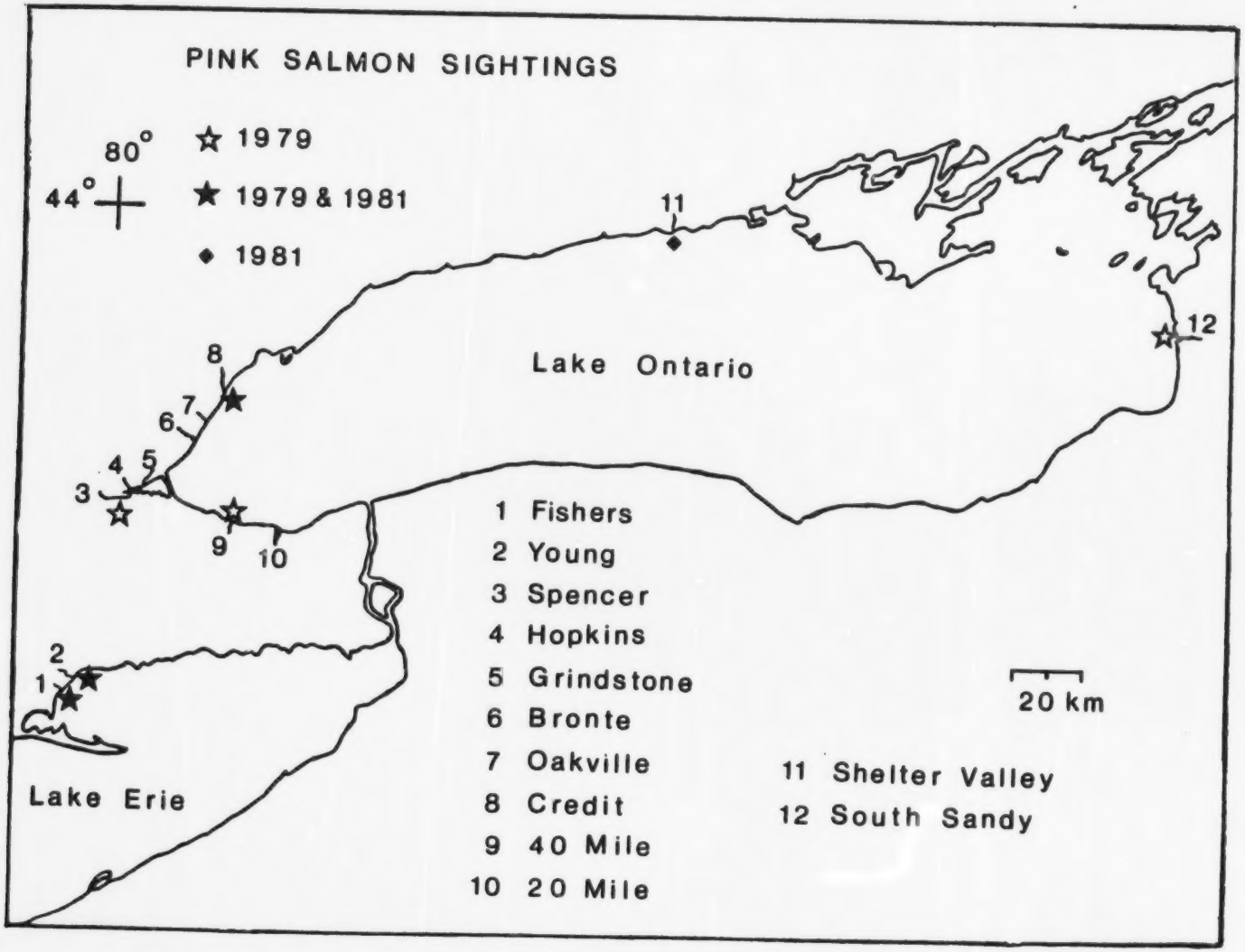
LIST OF FIGURES

Figure 1. Locations of streams surveyed and occurrences of pink salmon in tributaries of Lake Ontario and the north east shore of Lake Erie.


PINK SALMON SIGHTINGS
80°
44°
1979
1979 & 1981
1981
Lake Ontario
Lake Erie
1 Fishers
2 Young
3 Spencer
4 Hopkins
5 Grindstone
6 Bronte
7 Oakville
8 Credit
9 40 Mile
10 20 Mile
11 Shelter Valley
12 South Sandy
20 km